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## ENUMERATION AND DESCRIPTION OF THE SEPTORIAS OF NORTH AMERICA.

BY GEORGE MARTIN, M. D.

(Continued from page 82.)

### 178. SEPTORIA PHLOGIS, Sacc. & Speg. (?)

Spots amphigenous, olivaceous below, dirty white above, 1—3 millim. diam. or, by confluence, larger, with a purplish shaded border (on the green leaves); perithecia rather numerous, epiphyllous, lenticular, 100—120  $\mu$  in diameter, dull black; sporules 18—30 x  $\frac{3}{4}$ —1  $\mu$ , faintly nucleolate, nearly straight, hyaline. These characters are taken from specimens on *Fhlox divaricata* collected by E. W. Holway in Iowa and probably the same as found in Wisconsin by Trelease on the same host (Parasitic Fungi Wis., p. 19), but the sporules are shorter and narrower than stated by Sacc. Syll. III. p. 533, where the sporules are given as 40—60 x 1—3  $\mu$  and the perithecia 150—200  $\mu$ .

### 179. SEPTORIA EUPATORII, Rob. & Desm. On lower leaves of living *Eupatorium serotinum*. Louisiana, March, 1887. Langlois, No. 1097.

Spots numerous, small, round, yellowish at first but soon becoming white, border narrow, raised and generally surrounded with a purplish stain; sporules rather thicker at one end, nearly straight, yellowish-hyaline, nucleolate, 20—25 x  $1\frac{1}{2}$   $\mu$ .

### 180. SEPTORIA COCOINA, E. & E. On leaves of *Cocos plumosa*, in a hot house, Columbia, Mo., May, 1887. B. T. Galloway, No. 250.

Spots amphigenous, large (1—2 cm.), white, with a black border; perithecia epiphyllous, scattered, lenticular, 150—200  $\mu$  in diameter; sporules clavate-vermicular, continuous, hyaline, mostly subundulate-curved, variable in length from 8—16  $\mu$  and  $1\frac{1}{2}$ —2  $\mu$  thick.

### 181. SEPTORIA CHIMAPHILÆ, E. & E. On leaves of *Chimaphila maculata*. Faulkland, Del., June, 1887. A. Commons, No. 515.

Spots amphigenous, white, with a purple border; perithecia mostly epiphyllous, scattered, sublenticular; sporules acicular, about twenty  $\mu$  long by less than one  $\mu$  thick. Whether this is the *Depazea Pyrolæ*, Fr., mentioned by Peck in 23d Rep., p. 64, as found on *Chimaphila umbellata*, we cannot say.

182. *SEPTORIA EXPANSA*, Niessl. Hedw., 1883, p. 15. On *Geranium Carolinianum*. Manhattan, Kansas, June, 1887 (Kellerman.)

"Hypophyllous, spots indeterminate, much expanded, gilvous or subochraceous; perithecia scattered, rather large, semi-immersed, opening at the apex; cirri reddish; sporules filiform, slightly curved, 50—60 x 1  $\mu$ , multinucleate and indistinctly septate." The Kansas specimens, which are evidently the same as those distributed by Dr. Winter in his Exsiccati (No. 2897), agree with the above description, except that the sporules are often 75—100  $\mu$  long and mostly as much as 1½  $\mu$  wide. They generally have about three septa.

183. *SEPTORIA ARGOPHYLLA*, E. & K. n. s. On living leaves of *Psoralea argophylla*. Manhattan, Kans., June, 1887 (W. T. Swingle.)

Spots amphigenous, minute (one millim.), nearly black at first, becoming dirty white in the center, with a dark, subindefinite border; perithecia mostly epiphyllous, scattered, rather large, immersed; sporules cylindrical, curved, obtuse, hyaline, faintly 2—3-septate, 40—55 x 2½—3  $\mu$ . Approaches *Phleospora*.

184. *SEPTORIA SILPHII*, E. & E. On leaves of *Silphium perfoliatum*. Ames, Iowa, September, 1886. Prof. B. D. Halsted.

Spots amphigenous, 2—5 millim. in diameter, dirty brown above, paler below, subrotund or limited by the veinlets of the leaf, border definite, slightly raised; perithecia sublenticular, mostly epiphyllous; sporules filiform, 35—50 x 1  $\mu$ , nearly straight and only faintly nucleolate. The spots become dirty white in the center. Closely allied to *S. Cacaliae*, E. & K., but spots rather darker and sporules mostly shorter.

185. *SEPTORIA LITTOREA*, Sacc. Syll. III, p. 512. On living and partly dead leaves of *Apocynum cannabinum*. Manhattan, Ks., June, 1887.

Spots amphigenous, rusty color, with a small white center, definite, suborbicular, 1—3 millim.; perithecia few (1—3) on a spot, epiphyllous, sublenticular; sporules subcylindrical, curved, nucleolate, nearly hyaline, obtuse at each end, mostly 50—70 x 2  $\mu$ , but some of them even 90—100  $\mu$  long. This agrees so well with the description given by Saccardo that there can be little doubt of its being his species.

186. *SEPTORIA SII*, Rob. & Desm. Sacc. Syll. III, p. 530. On leaves of *Cicuta maculata*. Manhattan, Ks., July, 1884. (Kellerman.)

Spots amphigenous, small (one millim.), round or nearly so, yellowish at first, then white, with a pale yellow border; perithecia few (1—3) on a spot, epiphyllous, black, punctiform; sporules filiform, slightly curved, ends rather acute, yellowish-hyaline, nucleolate, 35—40 x 1—1½  $\mu$ .

187. *SEPTORIA AEGOPODII*, Desm. Crypt. Fr., 616. On w'thered leaves of *Osmorrhiza longistylis*. Racine, Wis., June, 1887. Dr. J. J. Davis.

Spots amphigenous, dirty white above, with an imperfectly-defined dark border, greenish below, small (2—3 millim.); perithecia nearly obsolete, pale, thickly scattered over the spots and visible on both sides, lenticular, 150—200  $\mu$  in diameter; sporules cylindrical, granular and

nucleate, becoming 1-septate,  $45-75 \times 2\frac{1}{2}-3 \mu$ . This is really a *Phleospora*, on account of the very imperfect perithecia (if they can properly be called perithecia). Really "acervuli" would be more nearly correct, as there are no proper perithecia either in the Wisconsin specimens or in any of the specimens of *S. Aegopodii* in the various European Exsiccati examined.

188. *SEPTORIA HELENII*, E. & E. On leaves of *Helenium autumnale*. Racine, Wis., June, 1887. Dr. J. J. Davis.

Spots amphigenous, 2—4 millim. in diameter, dark, becoming dirty white, with a dark, slightly raised border; perithecia about  $100 \mu$  in diameter, of pale, parenchymatous structure, epiphyllous, the minute, black, perforated, papilliform ostiola showing as black specks thickly scattered on the spots; sporules vermiform,  $20-35 \times 2 \mu$ , 1—3-septate. *S. Helianthi*, E. & K., has larger, ferruginous spots without any raised border and much longer sporules acuminately attenuated at each end and 3—5-septate.

In the 23d Rep. N. Y. State Mus., pp. 54 and 55, the following *Septorias* are mentioned: *S. plantagincola*, B. & C.; *S. Liriodendri*, B. & C.; *S. Vitis*, B. & C.; *S. destruens*, West.; *S. sanguinea*, Desm. Of these, the first is probably the same as *S. inconspicua*, B. & C.; the others may be considered doubtful.

*Septoria viticola*, B. & C., in Rav. F. Am., No. 26, should be *Sacidium viticolum*. See Grev. VI, p. 136.

NOTE.—In the preceding list, Nos. 159—188 have been added since Dr. Martin's death.

Prof. Saccardo having transferred a number of species heretofore described as *Septorias* to the genera *Phleospora*, *Rhabdospora* and *Phlyctena*, they will be found under these heads.

**PHLEOSPORA**, Wall. Sylloge III, p. 577.

Perithecia innate, imperfect; sporules hyaline, elongated-fusoid, thick, 2-pluriseptate—growing on leaves. A name illly chosen to distinguish them from the *Septorias*, as the sporules are exuded or flow out in both.

1. **PHLEOSPORA ACERIS** (Lib.) Sacc. Sylloge III, p. 577; *Ascochyta Aceris*, Lib.; *Septoria acericola*, Desm.; *Septoria Aceris*, B. & Br.; Ellis, N. A. F., 346.

Spots tawny or pale yellow, subangular, limited by the veinlets, often coalescing, 3—5 millim. in diameter; perithecia brown, flattened, innate, hypophyllous,  $150-200 \mu$  in diameter; sporules hyaline, subfusiform, ends obtuse, 3-septate, not constricted,  $20-30 \times 3-5 \mu$ . On leaves of *Acer* and *Negundo aceroides*. Massachusetts and California.

2. **PHLEOSPORA CELTIDIS**, E. & M.

Spots gray-brown, gray in the center, irregular, coalescing; perithecia dark brown, subglobose, prominent, few in a spot, amphigenous,  $200-275 \mu$  in diameter; sporules subhyaline, subfusiform, ends subacute, curved, 6—8-septate,  $70-80 \times 8-10 \mu$ . On leaves of *Celtis occidentalis*. Missouri.

3. PHLEOSPORA MORI (Lev.), Sacc. *Sylloge III*, p. 577; *Septoria Mori*, Lev.; Rav. F. A., 506.

Spots light brown, subcircular, 1—2 millim. in diameter, border red-brown; perithecia (?) brown, innate, slightly prominent, hypophyllous—"mostly epiphyllous, Sacc."—50—60  $\mu$  in diameter; sporules hyaline, subfusiform, nearly straight, 3—4-septate, 40—50 x 4  $\mu$ . On leaves of *Morus rubra*. Pennsylvania to South Carolina. Perithecia very variable and sometimes entirely wanting.

4. PHLEOSPORA MORICOLA (Pass.), Sacc. *Sylloge III*, p. 578; *Septoria Mori*, Lev.

Spots indeterminate or brownish-gray, with a narrow, red-brown border; perithecia (?) small, scattered or loosely gregarious, innate slightly prominent, hypophyllous; sporules hyaline, subfusiform, multi-septate, on Pennsylvania specimen 5—7-septate, 60—70 x 4—5  $\mu$ . On leaves of *Morus alba*. Pennsylvania. Only distinguished from *P. Mori* by the multiseptate sporules.

5 PHLEOSPORA ULMI (Fr.), Wallr. *Sylloge III*, p. 578; *Septoria Ulmi*, Fr.

Spots light brown; perithecia (?) thin, scattered, innate, hypophyllous, brown, 120—140  $\mu$  in diameter; sporules hyaline, oblong-ovate, ends obtuse, 3—4-septate, 40—50 x 6  $\mu$ , exuded in white threads. On leaves of *Ulmus*. New York, Pennsylvania and Kentucky and westward to Missouri and Kansas.

6. PHLEOSPORA ANEMONES, E. & K. On leaves of *Anemone*. Kansas, July, 1886. (Kellerman.)

Leaf slightly yellowish and sprinkled with reddish-purple specks, indicating the position of the perithecia, which are distinctly prominent below, with a large opening through which issue in pale cirri the oblong-cylindrical, hyaline, nucleate, finally 3-septate sporules, which are 25—40  $\mu$  long and about three  $\mu$  thick.

7. PHLEOSPORA ASIMINÆ, Ell. & Morgan. On leaves of *Asimina triloba*. Preston, Ohio. A. P. Morgan.

Leaves blotched above with dark brown; perithecia very rudimentary, minute, crowded in the brown spots in areas limited by the veinlets, opening below and discharging the oblong-fusoid, granular, nucleate and finally about 3-septate, slightly constricted, 20—40 x 12—15  $\mu$  sporules in the form of a white pruinosity on the surface of the leaf; basidia stout, 10—20 x 6—10  $\mu$ . The habit and general appearance is that of a *Cylindrosporium*.

8. PHLEOSPORA CARICIS, E. & E. On partly dead leaves of *Carex angustata*. Faulkland, Del., October, 1886. A. Commons, No. 466.

Perithecia on dull white, orbicular or, by confluence, subelongated spots 1—2 millim. in diameter, 3—10 in a spot, minute, black, slightly prominent; sporules oblong, 40—60 x 12—16  $\mu$ , becoming 4—6-septate. The spots appear on the green, living leaf and are surrounded by reddish rusty border and the leaf soon becomes dead and dry.

RHABDOSPORA, Mont. Sylloge III, p. 578.

Perithecia innate-erumpent, globose or depressed, brown or black, growing mostly without spots on branches or stems and not on leaves.

RHABDOSPORA ALLANTOIDEA (B. & C.), Sacc. Sylloge III, p. 586; *Septoria allantoidea*, B. & C., N. A. Fungi, No. 442.

"Spots pallid, elongated; sporules slightly sausage-shaped (oblong), 15—12  $\mu$  long." On stems of *Medicago sativa*. Pennsylvania.

2. RHABDOSPORA BREVIUSCULA (B. & C.), Sacc. Sylloge III, p. 580; *Septoria breviuscula*, B. & C., N. A. Fungi, No. 450 bis.

"Epidermis elevated by the perithecia; sporules sausage-shaped, twenty-five  $\mu$  long." On branches of *Robinia*. South Carolina.

3. RHABDOSPORA CONTINUA (B. & C.), Sacc. Sylloge III, p. 593; *Septoria continua*, B. & C., N. A. Fungi, p. 11, No. 444.

"Perithecia scattered, hidden by the epidermis, a little prominent; sporules filiform, nearly straight, basidia half the length of the sporules." On the scapes of *Plantago major*. Pennsylvania.

4. RHABDOSPORA DECIPIENS (B. & C.), Sacc. Sylloge III, p. 582; *Septoria decipiens*, B. & C., N. A. Fungi, No. 445.

"Perithecia at last uncovered; sporules slender, long, flexuous." On whitened twigs of *Lonicera*. South Carolina.

5. RHABDOSPORA DIANÆ (B. & C.), Sacc. Sylloge III, p. 586; *Septoria Dianæ*, B. & C., N. A. Fungi, No. 445 bis.

"Perithecia flattened, large; sporules curved, long, nucleolate, acute." On branches of unknown tree. New England.

6. RHABDOSPORA FALX (B. & C.), Sacc. Sylloge III, p. 582; *Septoria Falx*, B. et C. Notice, N. A. Fungi, p. 76, No. 446 bis.

"Spots dull white or none; perithecia brown, black around the ostiola, globose, large, erumpent, densely gregarious, numerous; sporules hyaline, filiform, continuous, not guttulate, 18—20 x 2—2½  $\mu$ ; basidia hyaline, straight, 12—16 x 2—2½  $\mu$ ." On branches of *Vitis*. South Carolina.

7. RHABDOSPORA HEDEOMINA (Pk.), Sacc. Sylloge III, p. 590; *Septoria hedeomina*, Peck, 33d Rep. N. Y. S. M., p. 25.

"Spots none; perithecia black, flattened, scattered, inconspicuous, 120—140  $\mu$  in diameter; sporules hyaline, filiform, strongly curved, 30—40  $\mu$  long." On dead calyx stems of *Hedeoma pulegioides*. New York.

8. RHABDOSPORA HELIANTHICOLA (C. & H.), Sacc. Sylloge III, p. 592; *Septoria helianthicola*, C. & Hark., Grev. IX, p. 6.

"Perithecia black, semi-immersed, forming black spots; sporules linear, straight or flexuous, colorless, 30—35 x 1  $\mu$ ." On stems of *Helianthus*. California.

9. RHABDOSPORA INTERRUPTA (B. et C.), Sacc. Sylloge III, p. 583; *Septoria interrupta*, B. et C., N. A. Fungi, No. 446.

"Perithecia scattered; sporules linear, flexuous, multinucleate, fifty  $\mu$  long." On branches of *Viburnum Opulus*. Pennsylvania.

10. RHABDOSPORA JUGLANDIS (Schw.), Sacc. *Sylloge III*, p. 584; *Septoria Juglandis*, B. et C., N. A. *Fungi*, p. 76.

"Perithecia black, innate, barely erumpent, gregarious; sporules rod-shaped, shortly curved above." On branches of *Juglans nigra*. Pennsylvania.

11. RHABDOSPORA KELLERMANI, E. & M.

Spots obsolete; perithecia black, innate, lenticular, scattered, 126—150  $\mu$  in diameter; sporules filiform, hyaline, nearly straight, 45 x 1½  $\mu$ . On stems and leaves of *Scrophularia nodosa* and *Mimulus ringens*. Ohio.

12. RHABDOSPORA LONICERÆ (C. et Ell.), Sacc. *Sylloge III*, p. 582; *Cryptosporium Lonicera*, C. & E., *Grev. VI*, p. 83.

"Perithecia black, subgregarious, covered by the elongated, fissured epidermis; sporules hyaline, cylindrical, curved, obtuse, twenty-five  $\mu$  long." On branches of *Lonicera*. New Jersey.

13. RHABDOSPORA MACULANS (B. et C.), Sacc. *Sylloge III*, p. 584; *Septoria maculans*, B. et C., N. A. *Fungi*, No. 448 bis.

"Spots pallid, minute, definite, border obscure; perithecia punctiform, gregarious; sporules slender, flexuous, twenty-five  $\mu$  long." On slender twigs of *Alnus*. South Carolina.

14. RHABDOSPORA PINI (B. et C.), Sacc. *Sylloge III*, p. 585; *Cryptosporium Pini*, B. et C., N. A. *Fungi*, No. 396.

"Perithecia papilliform, black, covered by the cuticle, then erumpent; sporules slender, curved, 1-septate, ends attenuated, seventy  $\mu$  long; basidia one third as long as the sporules." On smooth bark of *Pinus*. New England.

15. RHABDOSPORA RIBICOLA (B. et C.), Sacc. *Sylloge III*, p. 579; *Septoria ribicola*, B. et C., N. A. *Fungi* No. 444 bis.

"Perithecia black, scattered; sporules linear, curved, twenty-five  $\mu$  long." On bleached branches of *Ribis rotundifolia*. Wisconsin.

16. RHABDOSPORA RUBI, Ell. n. sp.

Perithecia black, subglobose, innate, erumpent, scattered, 100—195  $\mu$  in diameter; sporules hyaline, linear, curved, 3—4-septate, 40—45 x 2  $\mu$ . On stems of *Rubus strigosus*. Illinois.

17. RHABDOSPORA SOLIDAGINIS (C. et E.), Sacc. *Sylloge III*, p. 591; *Cryptosporium Solidaginis*, C. et E., *Grev. VI*, p. 83.

"Perithecia brown, flattened, small, gregarious, innate, erumpent; sporules hyaline, fusiform, bowed or gently curved, acute, 30—35  $\mu$  long." On stems of *Solidago*. New Jersey.

18. RHABDOSPORA TRIFOLII (Ellis), Sacc. *Sylloge III*, p. 586; *Septoria Trifolii*, Ellis, *Bul. Torr. Bot. Club IX*, p. 74; Ellis, N. A. F., 746.

Perithecia covered but soon exposed by the peeling off of the epidermis, gregarious, forming little elongated patches or scattered evenly over the matrix; sporules fusiform, curved, granular, 20 x 4—5  $\mu$ . On dead stems of *Trifolium pratense*.

19. RHABDOSPORA VERRUCIFORMIS (B. et C.), Sacc. Sylloge III, p. 583; *Septoria verruciformis*, B. et C., N. A. F., No. 447.

"Perithecia large, wrinkled; sporules slender, nearly straight." On branches of *Cephalanthus*. Alabama.

20. RHABDOSPORA SUBGRISEA, Pk. 38th Rep. N. Y. State Mus., p. 98.

"Perithecia numerous, punctiform, depressed, black, covered by the epidermis, generally forming long, indefinite, grayish-brown spots; sporules filiform, straight or curved, 8—15  $\mu$  long. Dead stems and galls of various species of *Solidago*. Albany, N. Y., April and May."

PHLYCTÆNA, Mont. & Desm.

Perithecia subcutaneous, sometimes erumpent, globose-oblong, opening in a subhysteroid manner, imperfect; sporules fusoid-elongate or filiform, continuous, hyaline, borne on various basidia.

1. PHLYCTÆNA VAGABUNDA, Desm. Sacc. Syll. III, p. 594.

"Spots none or very minute, brown, fibrillose; pseudo-perithecia numerous, scattered; sporules hyaline, curved, elongated, linear, subobtuse, 7—9-guttulate, 18—25  $\mu$  long. On herbaceous stems of *Phytolacca*, etc."

2. PHLYCTÆNA SEPTORIOIDES, Sacc. *Septoria phlyctænoides*, B. & C., Grev. III, p. 10.

"Caulicolous; on white, elongated spots; perithecia hysteriiform; sporules filiform, curved above, hyaline, about twenty-five  $\mu$  long. On stems of *Phytolacca*. Pennsylvania (Michener.)"

3. PHLYCTÆNA ORTHOSPORA, B. & C. Grev. II, p. 101.

"Pustules oblong with a dark margin, covered by the epidermis; sporules oblong, six  $\mu$  long. On stems of *Phytolacca*." More properly a *Phoma*.

4. PHLYCTÆNA COMPLANATA (B. & C.) *Septoria complanata*, B. & C., Grev. III, p. 10.

"Caulicolous; perithecia rather large, somewhat flattened, hysteriiform; sporules very slender, nearly straight, very long. On stems of *Polygonum Virginicum*. Pennsylvania (Michener.)"

5. PHLYCTÆNA GOSSYPII, Sacc. Syll. III, p. 595.

"Perithecia globose, depressed, one half millim. in diameter, partially covered, texture parenchymatic, subfuscous; nucleus gray; sporules filiform, uncinate above, 25—30 x 1—1½  $\mu$ , hyaline, borne on rather short, bacillary basidia. On stems of cotton plant. South Carolina (Ravenel.)"

6. PHLYCTÆNA ARCUATA, Berk. Grev. II, p. 100.

"Pustules minute, subconvex, covered by the epidermis; sporules filiform, hooked at the apex, twenty-five  $\mu$  long. On dead stem of *Solidago* and on *Rumex*."

7. PHLYCTÆNA SIMULANS (B. & C.) *Septoria simulans*, B. & C., Grev. III, p. 10.

"Caulicolous; on an elongated, pale spot; perithecia hysteriiform; sporules linear, curved, 25  $\mu$  long, elongated, curved at the apex, 20—25  $\mu$  long. On stems of *Nabalus*. New England."

8. PHLYCTÆNA SMILACIS, Cke. Texas Fungi, No. 141.

"Covered, minute brown, densely gregarious, slightly elevated; sporules filiform, elongated, curved at the apex, 20—25  $\mu$  long." On stems of *Smilax*. Texas.